

## **AUDIT II**

# **Country Report LATVIA**

Aldis Grekis  
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## SUMMARY OF ENERGY AUDITING

### **Background and Present National Energy Policy**

Latvia takes part in the global climate change mitigation process and has acceded, together with many other countries, to the United Nations Framework Convention on Climate Change (Convention) adopted by the UN Conference on Environment and Development held in Rio de Janeiro in 1992. The Convention gained its affect on March 21, 1994. Saeima (Parliament) of the Republic of Latvia has ratified the Convention on February 23, 1995 and since March 23, 1995 Latvia is a Party to the Convention thus undertaking to implement series of international commitments.

The Saeima (Parliament) of the Republic of Latvia ratified the Kyoto Protocol on 20 May 2002 (the law took effect on 13 June 2002).

On 29 October 2002, the Cabinet of Ministers of the Republic of Latvia approved the Strategy of Joint Implementation for 2002 – 2012 as defined in the Kyoto Protocol to the UK Framework Convention of climate Change and passed Regulation of the Cabinet of Ministers No. 653 "On the Strategy of Joint Implementation (2002 - 2012) as Defined in the Kyoto Protocol to the UN Framework Convention on Climate Change".

State Energy Efficiency Strategy of Latvia until 2010 is the only policy document, which directly mentions energy audits. The document provides broad suggestions on the possible instruments for promotion of the energy efficiency concerning energy audits among these instruments.

No law or other legislation acts adopted concerning with energy audit in Latvia. Present energy audits in buildings and industry are voluntary without any approved methodology and audit forms.

Several energy audit initiatives and projects have been undertaken in different sectors, usually with international partners.

### **Energy Audit Programmes**

There are no ongoing Energy Audit Programmes in Latvia.

### **Other Programmes including Energy Audits**

Project "*Assistance to implementation of the Energy Efficiency fund – Latvia*" was developed with Danish Energy Agency (present Danish Energy Authority) initiative and related to program "Environment Related Energy Sector Programmes for Latvia".

The project *Energy Efficiency and Housing Studies Component* financed by the Japanese Government Grant PHRD allocated to provide basis for a successful implementation of the Housing Project supported by The World Bank. The client of the project was the Technical Unit of Latvia.

The project was conducted by the Consultant – COWI A/S of Denmark, which has entered into association with Blezurs Consultants Ltd. of Latvia (BKb) to provide the consultancy for the project. This project included development of Energy audit methodology and in its framework was performed fifteen energy audits to test energy audit methodology in buildings.

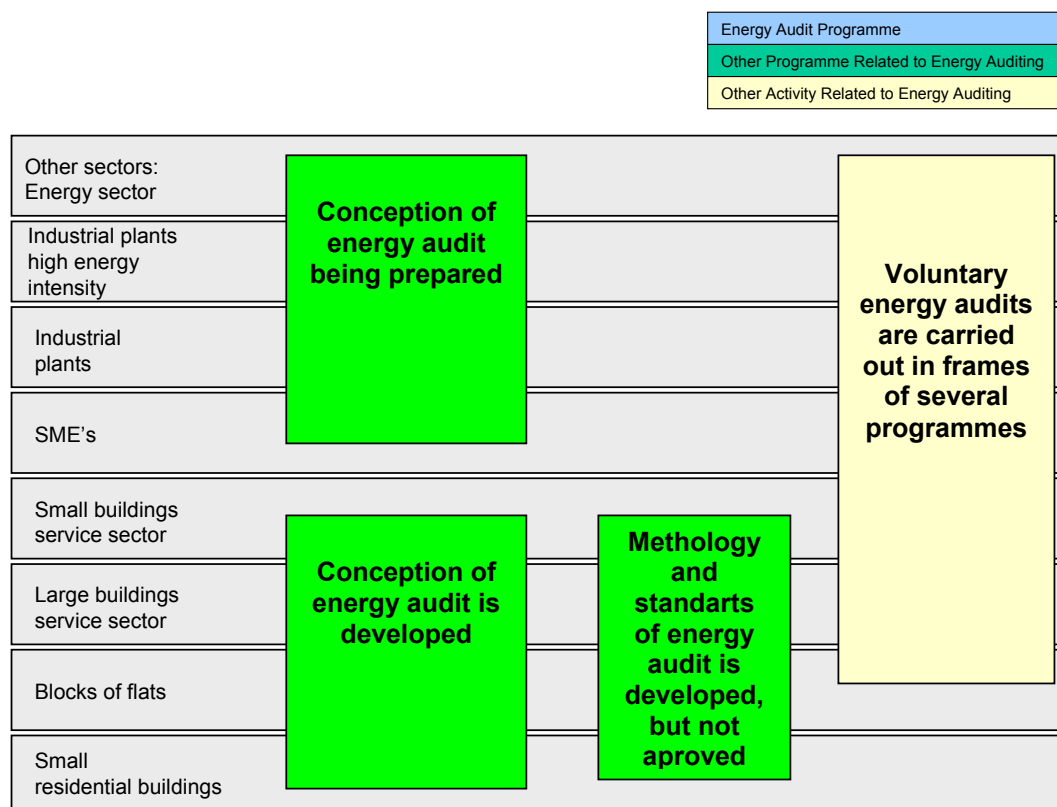
Project *“Implementation in Latvia of the EU-SAVE Directive 93/76 EEC and the EU-Directive on Energy Performance of Buildings”*. The aim of preparing this Conception Document is to provide the Cabinet of Ministers with the necessary information and documentation in order to make decisions about implementation of two EU-Directives regarding energy performance of buildings.

### **Other Activities including Energy Audits**

Although energy audit isn't defined by legislative acts in Latvia, here several voluntary energy audits in different spheres are carried out. This is related to initiatives of introduction of energy efficiency measures.

Audit of the consumption of energy resources in Latvian dairy enterprises carried out in 1996 and 1997 within Dutch government program „Clean Technologies and Energy Conservation in Latvian Food Industry” provided information on the current situation in these enterprises.

During project „Energy efficiency increase in bakeries of Latvia” energy audits in twelve bakeries were carried out in co-operation with Dutch and Danish specialists who suggested to start putting in order energy management systems in these enterprises.



**Figure 1. The Map of energy audits in Latvia**

**Table of EAP features coverage**

	Introduction of methods and system for energy auditing in industry	Introduction of methods and system for energy auditing in buildings and introduction of certification
<b>Status</b>	2001 -	2001 -
<b>Administration</b>	Ministry of Economic Department of energy	Ministry of Economic Department of Buildings
<b>EA models</b>	+	+++
<b>Auditors' tools</b>	+	+++
<b>Training, authorisation</b>	+	++
<b>Quality control</b>		++
<b>Monitoring</b>		++
<b>Volumes, results</b>		
<b>Evaluation</b>		

+++ = Detailed information available  
 ++ = Some information available  
 + = Very little information available  
 = No information available / does not exist

## Contacts

General information	<b>Vija Geme</b> <b>Director of Department</b>	Ministry of Economic Building Department	+371 7026461	vija.geme@varam.gov.lv
	<b>Ugis Sarma</b> <b>Director of Department</b>	Ministry of Economic Energy Department	+371 7013169	Ugis.Sarma@em.gov.lv
	<b>Valdis Kregers</b> <b>Director of Department</b>	Latvian Development Agency Energy Department	+371 7013265	vkregers@lda.gov.lv

## Country Report

Country Report written by	Aldis Grekis	Latvian Development Agency Department of Energy
Commented and guided by	Ilona Vilsons	Latvian Development Agency Department of Energy
Commented by	Erja Reinikainen	Olof Granlund Oy

## Disclaimer

The information contained in this report has been gathered from publicly available sources and through interviews. All efforts have been made to secure the veracity of the report, however the authors cannot guarantee the content.

## THE COUNTRY REPORT

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# **1 Background and Present National Energy Policy**

## **1.1 Previous activities**

No law or other legislation acts adopted concerning with energy audit in Latvia. Present energy audits in buildings and industry are voluntary without any approved methodology and audit forms.

Energy audit initiatives in Latvia began in 1999 when Danish Energy Authority (former Danish Energy Agency) undertook project "Assistance to implementation of the Energy Efficiency fund – Latvia". A group of energy auditors was established, which together with experts from Danish consulting firm "Ramboll" and Danish Technological Institute developed several energy audit pilot projects in different spheres: in buildings, industry, heat supply enterprises and district heating networks. During this project a handbook of energy audit was developed.

With the initiatives of Ministry of Economy Building Department (former Ministry of Environmental Protection and Regional Development Building Department) several projects were implemented related with energy audit in buildings. Building Department in cooperation with Latvian Development agency Energy department has developed standards of Energy audits in buildings, that at present have not been approved yet.

In the project Energy Efficiency and Housing Studies Component financed by the Japanese Government Grant PHRD allocated to provide basis for a successful implementation of the Housing Project supported by The World Bank, was developed methodology of energy audit.

In the project „Implementation in Latvia of the EU-SAVE Directive 93/76 EEC and the EU-Directive on Energy Performance of Buildings conception on energy audit in buildings was developed. This conception is prepared to submission in Cabinet of Ministers. Similar project provides developed conception for energy audit in industry.

## **1.2 Present national energy policy**

### **1.2.1 International agreements and conventions**

Latvia takes part in the global climate change mitigation process and has acceded, together with many other countries, to the United Nations Framework Convention on Climate Change (Convention) adopted by the UN Conference on Environment and Development held in Rio de Janeiro in 1992. The Convention gained its affect on March 21, 1994. Saeima (Parliament) of the Republic of Latvia has ratified the Convention on February 23, 1995 and since March 23, 1995 Latvia is a Party to the Convention thus undertaking to implement series of international commitments.

The Saeima (Parliament) of the Republic of Latvia ratified the Kyoto Protocol on 20 May 2002 (the law took effect on 13 June 2002).

On 29 October 2002, the Cabinet of Ministers of the Republic of Latvia approved the Strategy of Joint Implementation for 2002 – 2012 as defined in the Kyoto Protocol to the UK Framework Convention of climate Change and passed Regulation of the Cabinet of Ministers No. 653 "On the Strategy of Joint Implementation (2002 - 2012) as Defined in the Kyoto Protocol to the UN Framework Convention on Climate Change".

### **Obligations according to the EU-Directives**

As a candidate-member of EU, Latvia must implement the following two EU-Directives:

- Council Directive 93/76/EEC of 13 September 1993 to limit carbon dioxide emissions by improving energy efficiency (the EU SAVE Directive)
- Council Directive on the Energy Performance of Buildings 2002/91/EC (the Energy Performance of Buildings Directive). The Directive has been approved by the EU-Council on 25 November, 2002

### **The EU SAVE Directive**

The purpose of the EU SAVE Directive is to limit carbon dioxide emissions in the Member States by improving energy efficiency.

The Directive can be considered as a "framework directive", where the member states are requested to draw up and implement programmes for improving energy efficiency in the following fields:

- Energy certification of buildings
- The billing of heating, air-conditioning and hot water costs on the basis of actual consumption
- Third-party financing of energy efficiency investments in the public sector
- Thermal insulation of new buildings
- Regular inspection of boilers
- Energy audits of undertakings with high-energy consumption.

Though progress has been made in the Member States since 1993, the need for a more binding Directive has been identified, and a new Directive has been elaborated.

### **The Energy Performance of Buildings Directive**

The objective of this EU Directive (the new Directive) is to promote the improvement of the energy performance of buildings within the Community, taking into account out-door climatic conditions, in-door climatic requirements, local conditions and cost-effectiveness.

All building types are encompassed, regardless of ownership. The Directive indicates among others energy labelling of buildings under further specified conditions.



The requirements to the Member States are formulated in the Articles 3-10:

- the general framework for a methodology of calculation of the integrated energy performance of buildings (Article 3);
- settling of energy performance requirements (Article 4),
- the application of minimum requirements on the energy performance of new buildings (Article 5);
- the application of minimum requirements on the energy performance of large existing buildings that are subjected to major renovation (Article 6);
- energy certification of buildings (Article 7);
- regular inspection of boilers (Article 8) and of air-conditioning systems (Article 9) in buildings and in addition an assessment of the heating installation in which the boilers are more than 15 years old; and
- ensuring qualified and/or accredited experts to carry out the energy audits (Article 10).

#### 1.2.2 National legislation

**State Energy Efficiency Strategy of Latvia** until 2010 is the only policy document, which directly mention energy audits. The document provides broad suggestions on the possible instruments for promotion of the energy efficiency concerning energy audits among these instruments.

The Strategy in relation to energy audits of the existing buildings suggests creating conditions that would facilitate voluntary interest of energy users in such audits. Also, options for promotion, financial and administrative, need to be considered – state support, loans on favorable conditions as well as requesting energy audits in case of purchase, sales, renovation and new construction of the buildings. It is suggested that certified energy audit programmes for buildings and unified energy audit methodologies as well as a system for certification of auditors need to be developed.

The strategy prescribes developing and implementation of the energy efficiency related legislation in accordance with EU Directives. The Ministry of Economy and Ministry of Environmental Protection and Regional Development are assigned the responsibility to develop a programme for implementation of the requirements of EU SAVE directive 93/76/EEC. However, the development of the procedure for building energy audit under responsibility of the Ministry of Environmental Protection and Regional Development was later excluded from the Strategy list of medium term legislative measures.

Draft Building **Energy Audit Standard** has been developed and is expected to be included in the system of standards of Latvia after its approval providing formulation and main principles for execution of energy audit.

**Article 57 of the Energy Law** (Chapter 10 dealing with increasing of energy efficiency) states that the existing or potential energy users in new buildings or houses and

buildings under reconstruction shall install envelopes having at least the heat resistance values specified by the relevant requirements.

The base of building regulations in Latvia is **Building Law** (adopted by the Parliament in August, 1995). According to this law Latvia has its own building regulation system consisting of Building codes, which are compulsory for all participants of construction process. All Building regulation and codes are to be elaborated on the basis of Building law. The Cabinet of Ministers adopted General Building regulations in 1996. There are around 20 Latvian Building codes at this moment in Latvia.

**Programme for Energy Efficiency Improvement of Public Buildings** has been developed by the Ministry of Environmental Protection and Regional Development Building Department in the framework of the National Building Programme

**Building Policy Concept** provides increasing the share of energy saving solutions by renovation of buildings, including insulation of the envelope and using energy efficient construction materials for the new houses.

**New code LBN 002-01 Heat Engineering of the Envelope of Buildings** has been adopted with required normative and maximum level of calculated energy losses for new buildings. The requirements for new buildings need to be applied from 2003.

## Support Schemes and Experience

In March 2000, Latvia paid the participation fee required for participation in the **European Union SAVE II programme** from 2001. It means that Latvia will be able to participate in the programme with justified projects regarding measures for increase of energy efficiency, including legislation.

**The Energy Efficiency Fund** issuing loans for the implementation of energy efficiency related projects started its operation in May 1999.

**Housing Development Loan Programme** adopted by the Government on 2000 has been started with implementation of two pilot credit programmes: the Housing Development Loan Programme Phase I (since 2001) and The World Bank Housing Project, Phase I (since 2002). The programmes are showing the first results, however, the need for direct support to homeowners regarding technical matters and decision-making are necessary.

**Pilot projects on energy management introduction** in municipalities have been conducted, also energy certification initiatives. Energy audit has been discussed and carried out in Latvia within the framework of various demonstration projects although a common methodology has been lacking.

**Technical training for the energy auditors** has been executed on project basis by Latvian Development Agency (LDA) in co-operation with the Danish company Ramboll and the Danish Technological Institute. The Riga Technical University is also ensuring auditors training course within the educational programme.

**Methodological and theoretical literature for energy audit** based on foreign experiences includes Energy Audit Manual (LDA and the Danish Energy Agency) and the Guide for Energy Audit of Buildings (MoEPRD and Ministry of Environment of Finland). Besides, many publications and presentations have been made.

### **The necessary institutional support**

However, at this moment the main barriers for promoting energy efficiency in buildings is connected with insufficient institutional framework:

- Government functions – shortage of resources to enforce more efficient promotion, supervision of energy efficiency measures in the country;
- Regional functions – Organisational / technical support for residents and HOAs in the decision and preparation of the investments in energy efficiency.

With the overall Government support (Declaration of intended activity and the Concept in 2001) the more efficient execution of the government functions in the field of energy efficiency in buildings is planned with the establishment of the Housing Agency. The support to residents and HOAs is currently managed by municipalities (situation is different), but a particular network of regional institutions for the support to residents and HOAs would be needed.

Building energy audit would be promoted by this institutional support system if it is established, and without it energy audit in building sector will be difficult if not impossible to promote.

Energy auditors must definitely participate as facilitators and consultants of energy efficiency projects, to increase the numbers of successfully implemented projects in Latvia.

## **2 Energy Audit Programmes**

There are no ongoing Energy Audit Programmes in Latvia.

### **2.1 Developing methods for energy audits in industry**

The Danish Energy Authority has allocated financing for a project in the Ministry of Economy, which will cover energy auditing in industry. This coming project will cover energy auditing in industry, including industrial buildings.

### **3 Other Programmes including Energy Audits**

#### **3.1 Project “Assistance to implementation of the Energy Efficiency fund – Latvia”**

This project was carried out with Danish Energy Agency (present Danish Energy Authority) initiative and relate with program “Environment Related Energy Sector Programmes for Latvia”.

The main objectives of the project were:

- Establishing a unit assisting the Latvian Development Agency and the Energy Efficiency fund in introducing energy auditing, project evaluation for the fund and elaboration of business plans for concrete projects for the fund.
- Establishment of an energy audit unit together with The Latvian Development Agency, which can evaluate and promote energy efficiency projects.
- Train the four selected energy auditors to be capable to solve the first tasks and start evaluation of projects.
- Secure and manage the operation of the auditors.
- Secure the operation of the auditors further on and thereby contribute future development of energy efficiency and saving in Latvia.
- The Energy efficiency promotion in Latvia will be linked to the international activities taking place within this area.
- Facilitate Latvian accession to Europe Union regarding energy efficiency.
- Secure the links to international activities regarding energy efficiency.

Four local energy audit specialists were engaged and received training under the project, as well as different measuring units for energy audit performance were purchased and given at disposal of the LDA Energy Engineering Department.

Within the framework of this project the energy audit manual was elaborated, based on experience of the energy-engineering specialists of Technological Institute of Denmark, the Ramboll and the Latvian Development Agency.

#### **3.2 Project “Energy Efficiency and Housing Studies Component”**

The project *Energy Efficiency and Housing Studies Component* (project) financed by the Japanese Government Grant PHRD allocated to provide basis for a successful implementation of the Housing Project supported by The World Bank. The client of the project was the Technical Unit of Latvia.

The project was conducted by the Consultant – COWI A/S of Denmark, which has entered into association with Blezurs Consultants Ltd. of Latvia (BKb) to provide the consultancy for the project.

The project was comprised of 6 Tasks. Results of each Task were presented in a separate Task report included in the Final Report.

*Task 1 – Breakdown of the Latvian Housing Stock, Energy Saving Potential and Investment Calculation.*

The main goal of Task 1 was identification of the energy savings potential of the Latvian housing stock and the necessary investments. According to Terms of Reference Task 1 was specified as follows:

- Produce report of energy saving measures in the existing housing stock, propose necessary investments and calculate energy saving potential by:
  - Inventory of current studies;
  - Break down of the housing stock;
  - Determination of energy saving measures and calculations of investment and payback period.
- Inventory on current studies will be done by the summary of all available projects carried out by consultants in Latvia. Demonstration projects done by Danish, Dutch, Score program, other countries projects done by World Bank, as well as bilateral projects have to be taken in account.
- Based on available data break down of housing stock has to be done by developing matrix of existing housing stock that provides information on: housing location, year of construction, structure type of unified model, construction materials, size, number of floors, heated area, number of apartments, estimate of current condition, ownership and maintenance form. Information on Latvian dwellings can be obtained from municipal urban development offices, architects, archives, recently finished projects, existing databases (State Land register, Land book, Municipal registries and Central Statistical Bureau of Latvia). Data will be sorted according to energy saving potential.
  - Determination of energy saving potential is to be done by analysing types of housing, comfort and quality, energy saving measures for each cluster of multi-apartment buildings.
  - Proposal of possible investment plan for the different types of buildings based on the size of investment (low, medium, high).
  - Calculation of potential and required investments and energy saving potential in the Latvian housing stock.

*Task 2 –Develop brochure about Energy Audit.*

**Task 3 – *Proposals for the Development of the Legal Framework to Introduce the Building Energy Audit in Latvia.***

According to Terms of Reference Task 3 includes the following tasks:

- Assess and develop legal framework to introduce energy audit in Latvia.
- Propose necessary amendments to laws, regulations of Cabinet of Ministers and other regulatory documents and propose contents for new necessary documents. The proposals should include full spectrum of legal documents and their description and content to introduce energy audit.
- Principles like when, how and by whom energy audit is to be carried out, should be incorporated in proposed legislation. EU accession commitments have to be taken in account.

**Task 4 and 5 – *Development of Building Energy Audit Methodology and Execution of Case Studies.***

According to Terms of Reference the objective of Tasks 4 and 5 is to develop standard form and methodology of energy audit to be used by:

- Home-owners Association to prepare an investment plan;
- Ministry of Environmental Protection and Regional Development to be able to carry out housing monitoring and;
- Commercial banks to evaluate a request for financing of respective investment.

**Task 6 - *Provide proposals for the development of the housing monitoring system in Latvia.***

According to the Terms of Reference Task 6 includes the following tasks:

- Identification of European Union requirements for housing monitoring and their fulfilment;
- Identification of national requirements for housing monitoring and their fulfilment;
- Propose level of monitoring by analysing the pros and cons of different alternatives;
- Recommendation of actual shape of the system, i.e., data to be collected, data collection and updating methods, as well as interconnection with other existing databases;
- Justification of housing monitoring system;
- Review of the housing monitoring systems in other countries.

### **3.3 Project „Implementation in Latvia of the EU-SAVE Directive 93/76 EEC and the EU-Directive on Energy Performance of Buildings”**

The aim of preparing this Conception Document is to provide the Cabinet of Ministers with the necessary information and documentation in order to make decisions about implementation of two EU-Directives regarding energy performance of buildings.

The SAVE Directive is a frame directive, while the Energy Performance Directive has mandatory requirements.

The structure of this document follows the requirements in order to submit Cabinet for approve of Conception Documents.

A background report for the Conception Document is prepared, containing background information and documentation for the Conception Document.

This Conception Document is a part of the Danish supported project “Implementation of the EU-SAVE Directive 93/76 EEC and the EU-Directive regarding Energy Performance of Buildings (proposal) in Latvia, July 2002”.

The project consists of four activities, ending with a seminar, where the project results will be presented:

- |             |   |
|-------------|---|
| Activity 1: | Preparation of a proposal for implementation of the two directives.   |
| Activity 2: | Preparation of an educational programme for Latvian Energy Auditors.  |
| Activity 3: | Preparation of an information campaign.   |
| Activity 4: | Assisting Ministry of Environmental Protection and Regional Development in preparation of an action plan for establishment of a secretariat for administrating an energy audit scheme for buildings |

In parallel with these project activities, the Ministry of Environmental Protection and Regional Development is developing variants of the legal foundation, including technical, financial and legal aspects. The variants will be submitted to the Cabinet.

The Conception Document is not covering industrial buildings. The Danish Energy Authority has allocated financing for a similar project in the Ministry of Economy, which will cover energy auditing in industry. This coming project will cover energy auditing in industry, including industrial buildings. The project will serve as an input to the new project, financed by DEA, and the two projects will be co-ordinate in order to achieve synergy and avoid duplication of work.

The Conception Document is carried out by RAMBØLL in close co-operation with Ministry of Environmental Protection and Regional Development, Building Department.

## **4 Other Activities including Energy Audits**

Energy audits in Latvian agro food industry in framework of PSO Programme allowed to collect information about situation in this branch in Latvia and to compare with energy efficiency indicators in EC countries.

Audit of the consumption of energy resources in Latvian dairy enterprises carried out in 1996 and 1997 within Dutch government program „Clean Technologies and Energy Conservation in Latvian Food Industry” provided information on the current situation in these enterprises.

During project „Energy efficiency increase in bakeries of Latvia” energy audits were carried out in twelve bakeries in co-operation with Dutch and Danish specialist who suggested to start putting in order energy management systems in these enterprises.

Additional positive effects of the project:

- reduced heat energy consumption for hot water preparation;
- improved efficiency of the baking ovens;
- increased awareness and interest for energy saving among the staff;
- improved environment;
- increased productivity;
- the transfer of know-how and dissemination of information.

Analyses of results of pilot projects were discussed in few workshops and meetings in frameworks of PSO and USAID Programmes as well as they are in scope of work of Latvia FEMOPET.

Energy efficiency motivation activities (described below) could be based on good examples of those projects as follow up activities.

Although energy audit isn't defined by legislative acts in Latvia, here several voluntary energy audits in different spheres are carried out. This is related to initiatives of introduction of energy efficiency measures.



## 5 References

### Reference material

Final report of project “ Energy Efficiency and Housing Studies Component, Latvia”.

Final draft conception document of project „Implementation in Latvia of the EU-SAVE Directive 93/76 EEC and The EU-Directive on Energy Performance of Buildings”.

State Energy Efficiency Strategy of Latvia

### Web-sites

<http://www.em.gov.lv/> – Republic of Latvia Ministry of Economic

<http://www.ida.gov.lv/> – Latvia Development Agency

### Currency

1 Ls = 1,67 €; 1 € = 0,60 Ls (fixed exchange rate)